

*Conservation and Development
Action Plan for Northwest Yunnan*



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Abbreviation

BOT	Built, Operation and Transfer
DFRI	Diqin Forestry Research Institute
DGFC	Diqin Gesang Flower Company
DPG	Diqin Prefecture Government
DPSTC	Diqin Prefecture Science and Technology Committee
ECC	Expert Consulting Committee
EIA	Environment Impact Assessment
GDP	Gross Domestic Product
GTC	Green Tourism Council
IUCN	World Conservation Union
KIZ	Kunming Institute of Zoology
NW	Northwest
NYARC	Northwest Yunnan Administrative and Reconciliatory Committee
SCP	Site Conservation Plan
SCZ	Special Conservation Zone
SMCs	Small and medium-sized companies
SWFC	Southwest Forestry College
TNC	The Nature Conservancy
UNESCO	United Nation Education, Science and Culture Organization
YAD	Yunnan Agriculture Department
YASS	Yunnan Academy of Social Sciences
YBRDC	Yunnan Bio-Resource Development Company
YCAD	Yunnan Civil Affairs Department
YCB	Yunnan Culture Bureau
YCD	Yunnan Construction Department
YEC	Yunnan Economy Commission
YEPB	Yunnan Environment Protection Bureau
YFD	Yunnan Forestry Department
YLRD	Yunnan Land Resource Department
YLTB	Yunnan Local Tax Bureau
YNC	Yunnan Nationality Commission
YNTB	Yunnan National Tax Bureau

YPC	Yunnan Planning Commission
YPDI	Yunnan Provincial Development and Investment Company, Ltd.
YPPB	Yunnan Press & Publication Bureau
YPRO	Yunnan Poverty Reducing Office
YRFTD	Yunnan Radio, Film and Television Department
YSDPA	Yunnan Society Development Promotion Association
YTB	Yunnan Tourism Bureau
YWCD	Yunnan Water Conservation Department
ZCC	Zhongdian Commerce Company
ZCG	Zhongdian County Government

Executive Summary

Environmental conservation and sustainable utilization of natural resources are essential for human beings' survival as well as for economic and social development.

Northwest Yunnan, with its extremely rugged terrain, diversified climates, and rich biological and cultural diversity, is internationally recognized as one of the world's most important hotspots. It is also one of China's most important areas in terms of hydro-energy, non-ferrous minerals and landscape resources.

Situated on the upper reaches of four great rivers – the Yangtze, the Mekong, the Salween, and the Irrawaddy, Northwest Yunnan plays a key role in providing ecological services for a large area on the lower reaches of the great rivers. Thus, it is of global significance to conserve the ecology of this region and realize sustainable utilization of the region's resources. The region is currently economically disadvantaged, and of the fifteen counties in the region, twelve are categorized as impoverished. Consequently, the eco-environment and natural resources have been degraded as a result of the local people's poverty, low educational level and traditional approaches to economic development.

In consideration of the mankind's survival and further development, it is of paramount importance to promote the awareness of governments at all levels and the local people for conserving the eco-environment, embracing the concept of sustainable utilization of the region's resources, and checking the short-sighted existing practices of over-exploitation of eco-environments and natural resources for economic benefits. In conclusion, the region's economic development should be promoted under the strategic framework of "development by conservation and conservation for development".

Since January 1999, the Yunnan Provincial Government, in collaboration with The Nature Conservancy, has been assembling some 200 interdisciplinary specialists and scholars from approximately 40 domestic and overseas organizations, including those from the public sector, for a 18-month research project targeted at the conservation of biodiversity and cultural diversity, compatible economic development and regional planning in NW Yunnan. To date, this research project has proved fruitful. This Conservation and Development Action Plan for NW Yunnan is based on the assembled research team's results.

This Action Plan represents not only one of the medium and long-term development plans

to be implemented in Northwest Yunnan but also the first specialized action plan targeted towards the conservation of biodiversity and cultural diversity, compatible economic development and regional planning in NW Yunnan, developed by the Yunnan Provincial Government.

Bearing the well-being of the local people in mind, the research team has prepared the Action Plan on the basis of the region's status quo and lessons learned from both home and abroad. The Action Plan is a comprehensive endeavor undertaken by experts and scholars from interdisciplinary fields that has resulted in a practical implementation blueprint. It is hoped that through the implementation of this Action Plan, as well as opportunities provided by the Western China Development Initiative, we will be able to make NW Yunnan a showcase region for the other regions in China and Southeast Asia.

1 Introduction to Northwest Yunnan

1.1 Location

The Project area encompasses Northwest Yunnan's 15 counties/cities of 4 prefectures, i.e., Deqin, Zhongdian and Weixi counties of Diqing Tibetan Autonomous Prefecture, Gongshan, Fugong, Lushui and Lanping counties of Nujiang Lisu Autonomous Prefecture, Dali, Bingchuan, Jianchuan, Heqing, Eryuan and Yunlong counties of Dali Bai Autonomous Prefecture, and Ninglang and Lijiang counties of Lijiang Prefecture. It covers an area of about 68,908 km² between 98°05'—101°15' degrees of north latitude and 25°30'—29°15' degrees of east longitude, accounting for 17.48% of Yunnan's total area with a population of 3.094 million, or 7.47% of Yunnan's total population.

1.2 Topography

The project area sits in a transition zone between the Qinghai-Tibet Plateau and the Yunnan-Guizhou Plateau, a precipitous area of the Hengduan Mountain Range with numerous towering mountains and deep gorges flanked by the Eastern Himalayas to the west. From west to east, four north-south running great mountains majestically stand side by side separated by four parallel rivers, i.e., the Dandanglika Mountain, the Dulong River (upper reaches of the Irrawady River), the Gaoligong Mountain, the Nujiang River (upper reaches of the Salween River), the Nushan Mountain, the Lancang River (upper reaches of the Mekong River), the Yunling Mountain and the Jinsha River (upper reaches of the Yangtze River). The nearest distance between the Nujiang River and the Jinsha River is a surprisingly short 60 km. From the summit of the Kawagebo (at an altitude of 6,740 m) down to the surface of the Nujiang River (at an altitude of about 700 m), the altitudinal difference is as high as over 6,000 meters. Such a uniquely rugged terrain, with gigantic differences in elevation, provides an easy corridor for the migration of the fauna and flora between north to south while simultaneously providing a barrier that prevents all exchanges between east and west. Due to this unique topography and the region's diversified climatic types, the region is rich in biological and cultural diversity, terrific landscapes, water, hydropower and mineral resources.

1.3 Ecological Service Function

As mentioned above, Northwest Yunnan region provides an ecological service as a watershed on the upper reaches of the four great rivers in Asia. The region's numerous

alpine lakes and vegetation play a significant role in preserving its water and soil. The region's ecological state consequently affects not only the ecological safety of the rivers' lower reaches but also the livelihood of about 500 million people inhabiting an area of some 2,930,000 km downstream.

1.4 Biodiversity Significance

(1) NW Yunnan's unique terrain and climatic types has blessed the region with a rich biodiversity and a variety of eco-landscape types representing not only one of the world's biodiversity hotspots but also one of China's three endemic species centers. These areas have been recognized as the birthplace for a number of species and the original centers from where numerous species separated and evolved. In addition, the region is a repository for the majority of China's endemic species, and it possesses China's best retained pristine and indigenous ecosystems, all of which are typical of the temperate zone and globally significant.

(2) Northwest Yunnan is home to 98 formations and ten vegetation types, several of which are found only in the region. These types are located in a number of climatic zones, including subtropical, temperate, cold temperate, cold alpine and dry valley, wetland and aquatic. The vegetation diversity exemplifies the region's biological richness and is a fundamental part of the region's diversified and complicated ecology as a whole.

(3) There are over 7,000 species of higher/vascular plants distributed throughout the region (accounting for 43.8% of Yunnan's total), including 5,079 species endemic to China, 2,988 endemic to the Hengduan Mountain Range area and 910 endemic to northwest Yunnan itself. Among the region's 910 endemic species, 12 genus are endemic to the region itself and 72 are found only in China, accounting for 28% of China's total.

(4) Northwest Yunnan is home to a great number of the world's renowned flower species. The region alone boasts some 200 of China's 470 species of rhododendron, or over half of the world's 850. Of the 500 primula species in the world, 293 may be found in China, and 100 of those are from northwest Yunnan. The region is a reservoir of wild plant resources, and one can find more than 2,000 plant species around the region that have long been used as highly-graded quality medicinal herbs.

(5) The region is a natural haven for 788 species of vertebrates, including 173 species of mammals, 417 species of birds, 59 species of reptiles and 36 species of amphibians,

accounting for more than half of Yunnan's total, or a fourth or a third of China's total. Of the region's 788 vertebrates, 200 species are endemic to the Himalaya-Hengduan Region. Northwest Yunnan's overwhelming biodiversity, particularly given its relatively small area, is unique not only in Asia but around the world as well.

(6) Northwest Yunnan lies at the hub of the world's three bio-geographic realms, i.e., the damp-temperate realm, the dry realm and the damp-warm realm. This is also a rare occurrence in the world. As a result, the region is considered one of the world's hotspots, possessing some of Earth's richest biodiversity, by many international organizations such as IUCN, the World Nature Fund, the Conservation International, the International Ornithological and Biological Organization and the University of Bonn, after a series of investigations.

(7) However, the region's ecosystems are extremely vulnerable. Given its rich biodiversity, most of NW Yunnan's species are endangered or on the brink of extinction because of their small quantities. Over 60% of the region is either alpine or sub-alpine, with steep precipices all around, a cold climate, and a thin and barren soil layer, making its recovery from destruction a slow process. Dry river valleys compose 15% of the region's topography and are characterized by a low and vulnerable coverage of vegetation, a dry and hot climate, and a thin and barren soil layer. Finally, the valley and subalpine areas have a longer history of economic development compared with the rest of the region, and they are densely populated. Time-honored, rough and inefficient practices of plundering these comparatively developed areas has resulted in a depletion of their natural resources and a degradation of the region's vegetation coverage. NW Yunnan's once affluent biodiversity is being reduced at a frightening rate, and the degradation of its ecological service function as a watershed is on the rise.

In conclusion, Northwest Yunnan is of a strategic significance in terms of global biodiversity conservation and bio-resources exploitation. It is imperative that we properly reconcile the issue of conservation with that of natural resources utilization.

1.5 Cultural Diversity Significance

(1) Region's Cultural Features. Northwest Yunnan's cultural heritage encompasses elements of Tibetan culture in the north, South Asia-Southeast Asia culture in the west/south and mainstream Chinese culture in the southeast. Over thousands of years, the four great rivers have lent themselves to being channels linking NW Yunnan with all of the

three cultures. Consequently, both cultural conflicts and assimilation process have been common around the region, and a patchwork of people from different ethnic groups living together is a typical scene that has contributed to the formation of an overall multicultural pattern in the region. This multicultural pattern, which has been seen as of a global significance, has made it possible for the region to become one of the hotspots for conservation of its abundant cultural diversity and heritage.

(2) Diversified Cultures. The major ethnic groups inhabiting the region include the Tibetan, the Naxi, the Bai, the Yi, the Lisu, the Pumi, the Nu and the Dulong groups. Over thousands of years, these ethnic groups have adapted themselves to the diversified natural environments of the region and each has created a distinct culture of their own, making the region one of the few areas found in the world that is co-inhabited by different ethnic groups using a variety of language systems and practicing unique and different religions, customs, and living styles. Thanks to the aforementioned situation, NW Yunnan has been bestowed with a great cultural heritage highlighted by countless historical sites and relics scattered around the region. It is worth noting that while coexisting with one another, these ethnic groups have created their own unique ecosystem conservation cultures, each of which not only accommodates but also depends upon nature itself for survival.

(3) Relationships between Different Ethnic Groups. The region's ethnic groups have undergone a long and complicated development. Friendly ties of mutual benefit and coexistence between groups have been forged through economic and cultural exchanges only after experiencing a vast number of vicissitudes of conflicts and assimilation. The current harmonious and stable social context has made the region's sustainable economic development possible.

(4) Social Development Status. As mentioned above, Northwest Yunnan has long been on the margins of the mainstream Chinese culture. Before the 1950s, such inhumane social systems as slavery and serfdom, not to mention the presence of some prehistoric primitive systems, had been in practice among a few ethnic groups, while others practiced more advanced systems of feudal ownership and early capitalism. The uneven historical backgrounds of these ethnic groups have inevitably left their marks on the region's social development, leaving it backward and uneven compared with other regions in China. The remoteness of the region has enabled some unique traditional culture heritage and ancient social vestiges to have survived surges of exotic cultural impacts to this day. All this heritage represents a valuable asset in the course of promoting the sustainable development in the region.

To sum up, Northwest Yunnan is rich in cultural diversity and heritage and, together with its affluent biodiversity, make it one of the world's crucial areas to be conserved.

1.6 Economical Development Patterns

With its low economic development levels, NW Yunnan ranks as one of China's most impoverished regions. The region's comparatively backward productivity levels and traditional development modes have greatly hindered its further economic development on a sustainable basis.

(1) Owing to its special geography and topography, the region is, to all intents and purposes, alpine and precipitous, and generally isolated from the rest of China. The alpine and subalpine areas are frequently hit by mudslides or earthquakes, the river valley areas are all too often afflicted by water shortages, and most of the area is at the mercy of cold wind, snow and natural disasters year round. In addition, backward cultivation modes, lack of essential infrastructure, capital supply and modern technologies, have all resulted in low agricultural and animal husbandry yields, or low proceeds from their rough and simple agricultural cultivation and animal husbandry farming. These are the region's only forms of economic development.

(2) Traditional lumbering has tremendously reduced the forest resources, which has given rise to a degradation of the eco-environment around the region. While the natural resources have been depleted and the ecology has deteriorated, there has not been an ecological service compensation mechanism in operation for the local people's benefit, and they have suffered greatly instead of benefiting from the development activity. To add fuel to the situation, a conflict between an accelerated increase in population and the increasing dependency of the local communities on natural resources for survival has put the conservation of biodiversity and the ecological safety downstream at stake.

(3) Due to its historical background in economic development distribution, there has been a gigantic contrast between the development levels of the region's commercial centers and its vast rural areas. In other words, there exists an outstanding unevenness or lopsidedness of development levels between the region's rural areas and its urban areas. As the latitude increases from south to north, conditions for agricultural cultivation gradually get worse, and the economic development and population density levels drop accordingly. In terms of economic development levels, Dali Prefecture ranks the highest, with the

Lijiang Prefecture, Diqing Prefecture and Nujiang Prefecture in descending order. Broadly speaking, the lopsidedness of the region's economic patterns are best illustrated by the following three scenarios:

(a) In a few areas, farmers work in the fields with modern intensive farming techniques and machinery or raise their livestock in large quantities in roofed enclosures with refined animal feed. However, the majority cultivate their croplands with roughly made farming tools and graze their handful of farm livestock in the wild.

(b) While a limited number of modern businesses operate on a commercial basis, with windows to the outside world, other simple processing mills engaged in primitive economic activities are scattered in large quantities throughout the region

(c) Though some fairly developed towns are growing day by day, the vast rural areas are as dormant as they were thousands of years ago.

In a word, Northwest Yunnan falls into the category of the most economically backward regions in Yunnan. In 1999, the region's GDP was estimated to account for a mere 6.7%, while its whole land area accounted for 17.48% and its population for 7.44% of the province's total. Revenues generated in 1999 throughout the region accounted for a mere 4.2% of Yunnan's total, while its expenditures added up to 6.6% of the province's total spending. Apart from such aspects as the region's universally low income levels and meager crop yields, social development levels are all also underdeveloped, and the local people's basic needs, such as water and energy supplies, public health and essential education cannot as yet be met. Once again, it is the top priority at this juncture to address the issue of poverty for the region's people in their pursuit of economic development.

1.7 Regional Challenges

1.7.1 Conflict between Poverty and Conservation of Biological and Cultural Diversity

Of the 15 counties in Northwest Yunnan, 12 are categorized as impoverished according to China's criteria; 75 out of 165 townships have been designated by the provincial government to be included in a list for poverty alleviation. In 1998, benchmarks were set by the provincial government for poverty alleviation in Yunnan's rural areas establishing that any farmer

whose annual net income per capita amounted to RMB 580 and whose cereal stock totaled 300 kilos per capita would not be considered impoverished. Using those benchmarks, there are still 495,000 people under the poverty line, accounting for 16% of the region's total population. Though some local farmers have become economically successful, i.e., their standards of living have risen above the poverty line, their status is tenuous, and a future calamity or misfortune would likely push them back into the dilemma of poverty.

To make ends meet, the local people are continuing to follow their old rough and inefficient practices for farming and living, which have contributed to the process of ecological deterioration and have increasingly posed a threat to the region's rich biodiversity. Conflicts between the region's population growth and accelerated utilization of natural resources are intensifying to a degree greater than ever before; disparities of economic development and social development between different areas are also expanding throughout the region at an accelerated pace. Should the local governments and people bow to these pressures, they would eagerly engage themselves in developing the local economy by depleting the natural resources on an indiscriminate and irrational basis, which would subsequently endanger the local biodiversity. At the same time, the pace of market globalization and the influx of exotic cultures and their ways of living would greatly impact the local culture diversity and heritage.

The recently-imposed ban on commercial lumbering of natural forests and the adoption of reforestation of croplands (and restoration of alpine meadows) by the central government are conducive to the recovery of the Northwest Yunnan's eco-environment and are of a crucial significance to the eco-safety of the areas downstream. However, these moves have had great repercussions by depriving the local residents and the governments of their major sources of income.

In order to simultaneously conserve the region and develop its local economy, efforts should be made in support of the development of alternative industries in place of traditional ones and an ecological service compensation mechanism should be created to cushion the conflict between poverty relief and conservation of biological and cultural diversity.

1.7.2 Limitations of Existing Nature Reserve System

The establishment of nature reserves is crucial for biodiversity conservation. Since the early 1980s, some nature reserves have been set up in the Northwest. Thus far, a nature reserve network has begun to take shape in the region. However, the total area of the network is inadequate from the perspective of successfully conserving the biodiversity of

this region, which is of a global significance. Besides, a coordinated and efficient management mechanism is apparently lacking. In the present situation, different government agencies have been charged to manage the network with their jurisdictions contradicting with or overlapping one another's. In many cases, these agencies' jurisdictions are largely incommensurate with their responsibilities. Their backward means of planning, management and monitoring make it impossible for them to carry out their duties properly. Regarding the policies or guidelines in practice, there has been an inadequacy of appropriate regulations and rules targeted to nature reserve conservation. In addition, the management of the nature reserve network relies solely on the government public spending source for funding, which is generally inadequate. Poor management and poor public awareness of eco-conservation have reduced the current nature reserve network to the verge of a breakdown.

In conclusion, we are obliged to strengthen the current nature reserve network's management before it is too late. It is strongly recommended that a large-scale capacity building project and a project for restructuring the current nature reserve management system, including a reclassification of the protected areas, should be developed and implemented as soon as possible. In the process of restructuring the management system, it is imperative for us to introduce both a national park management system as well as one of the world's state-of-the-art approaches to planning, management and monitoring, the framework of "*Conservation by Design*" put forward by The Nature Conservancy in recent years.

1.7.3 Lack of Ecological Benefit Compensation Mechanism

Representing one of China's key species gene pools and an important repository full of biodiversity, Northwest Yunnan is of a crucial significance in providing ecological services to the lower reaches of the four great rivers in Asia. It is also, however, a territory extremely vulnerable to destruction. As mentioned earlier, the region's ecological state, regardless of quality, has a tremendous impact on the livelihood of about 500,000,000 people who live downstream. Therefore, the conservation of the region's biodiversity and ecosystems deserves the attention and support from the people and governments on the lower reaches of these great rivers. The sad fact is that no such ecological benefit compensation mechanism has been put into effect as yet.

1.7.4 Loss of Traditional Heritage due to Introduction of Exotic Culture

With the speed of China's modernization drive quickened, Northwest Yunnan is experiencing a series of tremendous social changes. As a result, the impact on the traditional cultures of most ethnic groups living in the region is unprecedented. Some substantial components of their traditional cultures are in the process of getting lost at an alarming speed: costumes, languages, architectural styles, dances, etiquettes, eco-conservation customs, to name but a few, are among the list. If feasible measures for conservation are not taken, most of this traditional cultural heritage will disappear within 20 or more years. Moreover, the sluggishness of the local economy and a long history of general backwardness have gradually eroded the self-confidence of some ethnic groups, in particular those with smaller populations. An extreme example is that some ethnic people mimic indiscriminately the lifestyles of the people living in more developed regions in China. This tendency has caused a crisis of cultural nihilism within these ethnic groups.

1.7.5 Resource Needs of Increasing Population Levels

(1) There is a conflict between population growth and a lack of arable land. According to a population forecast, by 2010, the NW Yunnan's population will reach 3,351,000, or a net increase of 257,000 from 1998. This situation will definitely add pressure to the already heavy burden put upon the existing capacity of natural resource utilization and environmental accommodation levels.

(2) Both the arable land management level and the output rate are low.

(3) Speedy population growth and a lack of arable land in Northwest Yunnan has resulted in years of rampant logging. In addition, cropland cultivation and livestock grazing has taken place at the expense of the region's natural forests and alpine meadows. These activities cause erosion and pollution and further contribute to environmental deterioration in the region. It is estimated that the erosion problem involves as large an area as 47,000 square kilometers along the Jinsha River (upstream branch of the Yangze) alone, ranking it first among the six regions through which China's six rivers flow. Approximately 260 million tonnes of soil slip into it every year, accounting for 42% of the total river reaches. Northwest Yunnan's rivers are also witnessing an escalating pollution problem due to industrial discharge, urban sewage and widespread use of chemicals around its vast rural areas. For instance, the Pijiang River in Lanping County and the Xi'er River in Dali City have become the major sources of pollution along the Mekong (known as Lancang River in China).

(4) The issue of fuelwood consumption. About 79% of the total population in the region use fuelwood as their sole energy source. Each year about 1.292 million hectares of forest disappear as a result of fuelwood consumption. During China's Ninth Five Year Plan Period (from 1995 to 2000), about 7.34 million cubic meters of wood were cut, with about 4.13 million cubic meters used for fuelwood consumption. The recently-imposed ban on commercial lumbering of natural forests has, in effect, affected less than 40% of the total consumption of the wood in the region. If the issue of fuelwood consumption cannot be addressed immediately, in 50 years, most of the natural forests in the region will disappear and the region's ecological service function will be lost.

1.7.6 Lack of Comprehensive and Coordinated Tourism Planning and Management of Tourism Impacts

In recent years tourism in NW Yunnan has been developing rapidly. From 1993 to 1999, the number of domestic tourists visiting the area increased from 1.95 million to 10.13 million, with an annual increase of 36.5%. While tourism has brought numerous benefits to the region (in 1999, 3.96 billion RMB in tourism income was recorded and over 20,000 people were directly employed in tourism-related jobs), it has also created many negative impacts on NW Yunnan's cultural and natural resources, including water pollution, habitat reduction and/or fragmentation, wanton killings of wild animals, and soil erosion along tourism roads and trails due to infrastructural construction. According to a report produced by the McKinsey & Co., Inc., an America-based consultancy firm, tourism planning in the region does not fully consider strategic market positioning, financial return analysis, and broader social and environmental impact analysis. Therefore, there is a great need for more communication and collaboration between relevant government agencies at all levels to facilitate more integrated, comprehensive and sustainable planning, monitoring and management of tourism in the region.

1.8 Regional Strengths and Opportunities

1.8.1 Strengths

(1) Sustainable economic development has been recognized worldwide as the only form of promoting the world's economies. In China the Central Government has set it as the cornerstone policy and one of the economic development strategies.

(2) The Central Government has made environmental conservation one of the components of the recently-launched Western China Development Initiative. Among the

many sectors to be promoted, tourism is strongly encouraged in the Initiative, especially ecotourism, the most fashionable tourism form in the world. In this regard, Northwest Yunnan, with its affluent biodiversity, cultural diversity and other tourism resources, is the most privileged region capable of taking the lead in tourism development with the opportunity provided by the Western China Development Initiative.

(3) China's State Council has decided to make investments worth RMB 96.2 billion in its ambitious project for natural forests conservation. Among the natural forests conservation portfolio, Northwest Yunnan is a key region for reforestation of croplands and restoration of alpine meadows. For the past two years of piloting process, the conservation efforts have paid off favorably. To sum up, the natural forests conservation campaign has provided Northwest Yunnan an unprecedented opportunity for conservation.

(4) Yunnan Provincial Government has decided: a) to build Yunnan into a "green province" with strong economic strengths; b) to make Yunnan an "influential province" with strong and diversified cultural strengths; and c) to develop Yunnan into an international gateway to Southeast Asia and South Asia. In order to properly plan the sustainable economic development in NW Yunnan, the provincial government recently held two specialized conferences in Dali and Lijiang. During the meetings, a blueprint was worked out for Northwest Yunnan. At the top of the agenda, the provincial government pledged to build Lijiang Prefecture into one of the world's renowned holiday resorts and a key base for bio-resource development. It also planned to make Dali City into a commercial center, a hub of international transportation, and one of China's first class tourist destinations.

(5) A working team has been organized for an application nominating "*the Three River Parallel*," one of the region's most spectacular attractions, as a UNESCO world natural heritage site.

(6) The mission of conserving the region's biodiversity and cultural diversity has received attention and support in recent years from more and more international organizations. These organizations include UNESCO, TNC, and GEF.

1.8.2 Opportunities

(1) Since the founding of the People's Republic of China, and particularly during the past two decades of China's reforming and opening up period, Northwest Yunnan has

accumulated both technological and financial strengths essential for the region's conservation and economic development.

(2) Apart from its unique biodiversity and cultural diversity, the region is rich in water, hydropower and mineral resources, and the potential of its diversified climates and landscape to generate revenues for the local people and governments on their poverty alleviation mission is encouraging. The economic benefits generated from developing the region on a moderate basis will help conserve Northwest Yunnan.

We are fully aware that ours is an ambitious mission. Yet we firmly believe in our goals and objectives. As long as we make the best use of all the opportunities and are ready to meet any challenges, we will be able to realize our goals and objectives of conserving the biodiversity and cultural diversity of Northwest Yunnan, in collaboration with the region's compatible economic development. In turning our goals and objectives into realities, we must give full play to the region's existing strengths and try our best to win as much support as possible from home and abroad. This includes encouraging the general public's participation, strengthening the regulatory environment and introducing high-tech-based approaches to the development of the affluent resources of Northwest Yunnan.

2. Guiding principles and General Goals

2.1 Guiding principles

In building Northwest Yunnan into a pilot region for demonstration in compatible economic development in China, the following principles should be upheld:

- (1) Sustainable economic development with conservation as a prerequisite;
- (2) Being innovative in conservation and development;
- (3) Developing the region on a moderate basis;
- (4) Utilization of natural resources on a reasonable basis;
- (5) The collaborative planning of conservation and development by different agencies or

organizations as well as the grassroots people of the region;

(6) Multi-lateral cooperative development with conservation of biodiversity and cultural diversity as the core of all endeavors;

(7) Participating parties entitled to sharing the benefits;

(8) Participating parties entitled to the use of resources;

(9) Separation of management and operation;

2.2 General Goals

(1) To conserve Northwest Yunnan's biodiversity and cultural diversity, as well as its ecology;

(2) To speed up the region's social and economic development and make use of the region's natural resources on a discreet and scientific basis;

(3) To help alleviate poverty of the local residents;

(4) To create an ecological special zone within 20 or more years in the region and make it one of the pilot regions for demonstration in the process of implementing the Western China Development Initiative in China;

(3) To reconcile the region's compatible economic development with its conservation endeavors; and

(4) To build the region into a showcase region for Yunnan, China and other Asian countries and regions in terms of compatible economic development.

2.2.1 Ecological Conservation

(1) To conserve Northwest Yunnan's unique ecosystems and its ecological service workings by establishing and consolidating an integrated nature reserve management

system, and to introduce state-of-the-art conservation techniques and practices to guarantee the realization of utilizing the region's natural resources on a sustainable basis;

(2) To establish efficient mechanisms for pollution prevention and control so as to put pollution in any forms under control, keep the deterioration of ecosystems in check and improve the region's environment as a whole.

2.2.2 Cultural Heritage Conservation

With the pace of globalization quickening, cultural heritage of all mankind is being challenged by modern lifestyles and concepts. Northwest Yunnan's cultural heritage is no exception. Under these circumstances, we should try our best to ensure the long-term viability of Northwest Yunnan's cultural heritage while encouraging local customs and practices that are conducive to the conservation of biodiversity and culture diversity. By doing so, we will be able to produce a good example in this regard for China and the world over.

2.2.3 Sustainable Economical Development

(1) To enable an ideal complementary union of "development by conservation and conservation for development" in Northwest Yunnan. In the course of developing the local economy, we should be committed to reconciling the conflict between development and conservation. Specifically, we should go to any lengths to improve the region's natural environment, not only for the environment's sake but for compatible economic development as well. This will ultimately provide an endless funding source and technical support for conservation purposes.

(2) To enable steady restructuring and displacement of traditional industries. In this regard, tourism, bio-resource-based industries, reusable and pollution-free energy industries, high-tech-based nonferrous mining and metallurgical industries should be encouraged to replace such time-honored industries as lumbering and related wood-processing and selling, papermaking, crop farming on hillsides, small scale mining and those traditional energy supply industries.

(3) To optimize industrial structure, i.e., for agriculture, high-value farming for local produce should be encouraged, while those economic activities detrimental to the eco-environment should be reduced and eliminated gradually. In the manufacturing

industry, high-tech-based enterprises should be upgraded to produce high-value products, and pollution-prone manufacturing activities be brought under control and gradually eliminated. Regarding service-related industries, tourism should be made a pillar industry to employ more people, and the industry's contribution to the local GDP should be increased on a greater scale in place of other traditional sectors.

3. Strategies

3.1 Biodiversity and Culture Heritage Conservation

3.1.1 Creation of a Nature Reserve and National Park System

3.1.1.1 Objectives

To scout out a new route suitable for China's future nature reserve and national park construction and to produce a trial system for solving jurisdictional conflicts between government agencies over various kinds of land.

During China's Tenth Five Year Plan Period, it is projected that 80% of Northwest Yunnan's endangered plant species, 50% of its endemic plant species, and over 80% of the Yunnan snub-nosed monkey populations and their habitats will be put under the umbrella of the protected areas. Furthermore, two sites should be selected for national park trial; by 2010, all the endangered plant species, over 70% of the region's endemic plant species and 100% of the Yunnan snub-nosed monkey populations and their habitats should be covered within the protected areas; by 2020, the region's forest coverage should be increased from the current percentage of 52.74% to 63% with an aggregate protected area reaching 26.38% of Northwest Yunnan's total area, and most species should be well protected and monitored.

3.1.1.2 Main Components

During the Tenth Five Year Plan Period, two nature reserves should be added to the existing national level nature reserve list, which will increase the total area of the existing nature reserves to 874,295 hectares. Six nature reserves should be added to the existing provincial level nature reserve list, which will increase the total area of the existing provincial level nature reserves to

776,500 hectares. By 2010, there should be 29 nature reserves in Northwest Yunnan, including twelve national level reserves (covering an area of 1,467,944 hectares), eleven provincial level reserves (covering an area of 239,964 hectares) and six prefectural level reserves (covering an area of 109,695 hectares), with the total area increased from the current 711,248 hectares to 1,817,603 hectares, a net increase of 1,106,355 hectares. The aggregate area of all these nature reserves should account for 26.38% of Northwest Yunnan's total area. By then, about 74.13% of the region's natural forests should be included in the protected areas, i.e., nature reserves and national parks. In this way the region's key areas for biodiversity will be incorporated in the protected areas and most of its endangered species will be protected.

(1) **11 More Nature Reserves:** Biluoxueshan (including Meilixueshan), Daxueshan/Xiaoxueshan (Zhongdian) Yunling (Laojunshan), Qianhushan, Qinglonghai, Zhushanmuduiwo, Tarboren, Ma'anshan, Longhuashan, Jinhushan and Xihu.

(2) **Nature Reserve Upgrading:** By 2005, Lugu and Yulongxueshan should be included in the site list for World Heritage nomination; Biluoxueshan (including Meilixueshan), Yunling (Laojunshan), Qianhushan, Shibaoshan, Fuheshan and Cibihu should be upgraded to provincial level reserves; and Zhushanmuduiwo, Qinglonghai and Ma'anshan should be upgraded to prefectural level nature reserves. By 2010, Biluoxueshan (including Meilixueshan), Yunling (Laojunshan), Qianhushan, Lashihai, Fuheshan, Bitahai and Shibaoshan should be upgraded to national level nature reserves; Luopingniaodiaoshan, Zhaoxia, Qinglonghai, Ma'anshan and Longhuashan should be upgraded to provincial level nature reserves; and Tarboren and Jinhushan should be upgraded to prefecture level nature reserves.

(3) **Expansion of 9 Nature Reserves:** During the project period, nine nature reserves should be expanded. They are: Gaoligongshan, Baimaxueshan, Cangshan-Erhai, Habaxueshan, Lugu, Bitahai, Jizhushan, Cibihu and Fuheshan.

(4) **Ex-situ Conservation:** Botanical gardens and germplasm gene pools should be established in Northwest Yunnan for the artificial breeding and cultivating of endangered species.

(5) **National Park Pilot Program:** A national park is a concept of protected area management to safeguard the integrity of ecological systems against any development activities or unlawful occupancies. Meanwhile, national parks lend themselves to being sites for the general public for tourism or sightseeing, scientific studies and educational

purposes. Characteristics of this concept are: a) reconciliation between conservation and resource utilization; b) separation of management from operation; c) a system of scientifically-based planning and management; d) finances from the Central Government public spending sources; e) from-the-ground-up participation of the public. The adoption of this model would enable a favorable spiral mechanism for conservation and economic development. Besides, national parks can also serve as spots for environmental conservation and patriotic education purposes. In building national parks in Northwest Yunnan, we should make use of the management experience, relevant expertise and practices of overseas national park precedents. It is proposed that the Meilixueshan and Laojunshan be used as pilot sites for future national park construction. After a period of operation, when related experience and practices are gained, the mechanism and successful practices could then be extended or leveraged to the rest of China. Keys to implementation of the pilot program include:

a) Macroscopically, different management models should be created for natural resource conservation and cultural resource conservation sites based upon their respective ecological and cultural features, specific requirements for conservation and the integrated planning for all areas involved;

b) Microscopically, future national parks' boundaries should be clearly drawn before a supervisory body is installed for their overall management. The supervisory body should be charged to oversee the operations of these parks, which will be in the operators' powers (i.e., operating powers and supervisory management powers will be separated).

3.1.2 Restoration of Degraded Natural areas

3.1.2.1 Objectives

(1) To control landslide disasters. By 2010, the landslides that affect major roads and key water conservancy infrastructure should be basically under control. By 2020, financial losses caused by landslide disasters should be reduced by 80% in main cities and towns, while the losses should be reduced by 50% in main roads, key water conservancy infrastructure and rural towns where township and town governments are located.

(2) To reduce soil and water erosion, and improve the micro-climate, natural environment, and ecological and environmental quality through an increase in vegetation

cover and rainfall storage.

(3) To effectively conserve natural forests and wildlife through the Natural Forest Conservation Program, including its strategies of natural regeneration by mountain closure and reforestation.

(4) To increase conversion of croplands to tree and grass planting and developing productive croplands. By 2010, all croplands with a slope of over 25o should be converted to tree and grass planting in Dali and Lijiang prefectures. The proportion for these sloped lands in Diqing Prefecture is 90% and in Nujiang Prefecture is 66%. In the meantime, productive cropland of 0.07 hectares per head should be developed.

In conclusion, by 2020, forest cover in Northwest Yunnan should increase to 63%, and a monitoring system for key sites should be established and operated.

3.1.2.2 Main Components

(1) To prevent and control landslides. Major measures of this component include the establishment of a support system for decision-making, an increase in vegetation cover, an improvement of part of existing croplands into highly productive croplands, and the building of dams that block soil and sand caused by erosion.

(2) To control erosion

a) To designate three counties, namely, Zhongdian, Gongshan, and Lijiang, and eighteen established nature reserves as key areas for the prevention of soil and water erosion. Exploitation of resources in the area should be restricted to prevent further erosion. (Three townships in Lijiang, ie, Fengke, Baoshan and Mingying will not be covered.)

b) To designate mining areas, main roads and large-size water conservancy infrastructure sites as key monitoring areas or targets. In these areas, regulations should be enforced more strictly, appraisal, monitoring and evaluation should be implemented, and existing erosions in the area should be brought under control.

- c) To designate six counties of Dali Prefecture, and six other counties (Lushui, Fugong, Lanping, Deqin, Weixi, and Ninglang), plus three townships of Lijiang County (Fengke, Baoshan and Mingying) as key areas of for soil and water erosion control.

(3) To convert steep croplands to tree and grass planting and the improvement of other croplands. This component should focus on the conservation of forests with ecological benefits, natural regeneration through mountain closure and tree planting, and the establishment of fuelwood forests and production bases for green industry. In the meantime, croplands with slope of over 25° should be converted to tree and grass planting, while those croplands with slope of less 25° should be developed as terrace or contour plantings. A total of 218,600 hectares of low-productivity croplands should be improved, and some of these lands' irrigation facilities should be improved. In addition, cash tree crops and animal husbandry should be developed. In general, an eco-agricultural system oriented towards soil and water erosion control should be aimed for.

3.1.3 Promotion of Alternative Energy Sources

3.1.3.1 Objectives

(1) To improve the structure of rural energy consumption by developing alternative energy resources, including hydropower, solar energy, coal, biogas, and the planting of fuelwood forests;

(2) To retrofit energy-consuming facilities for rural households and their farming/productive activities;

(3) To accelerate the prospecting and developing process for local conventional alternative energy resources such as hydropower and coal;

(4) To develop new and renewable energy sources and promote the utilization of high-quality commercial energy among the local communities so as to cut down the current fuelwood consumption levels and check the degradation of natural forests;

(5) To achieve consumption-growth balance for standing forest stock in seriously deteriorated forest areas and net growth of natural forest stock within the project area by the years 2010 and 2020, respectively, so as to facilitate the conservation of the regional ecological environment and biodiversity while improving the living standards of local communities.

3.1.3.2 Main Components

(1) Further promotion for the use of the fuelwood-saving stove. Though improvements have been made by the government to the original cookstove designs, resulting in a fuelwood-saving stove possessing a higher thermal efficiency and a lack of produced pollution, further advances should be pursued, and more efficient stoves should be highly promoted among the local rural communities. This is the only solution to a substantial reduction in wanton logging and effective conservation of the region's ecology. For those cold alpine as well as more remote areas, where a complete ban on fuelwood consumption is difficult or impractical, energy-saving retrofitting for fuelwood-consuming facilities, i.e. fireplaces, other heating facilities, tea processing devices, tobacco curing facilities, brick and tile kilns, should be effected to significantly cut down fuelwood consumption in space heating and village industries.

(2) Planting of rapid-growth fuelwood forest on suitable barren land in areas where forests are currently bearing heavy pressure from fuelwood collection. This will help to increase the availability of fuelwood resources, thereby alleviating the pressure on and allowing for the rejuvenation of the natural forests.

(3) Promotion of the use of household-scale biogas cisterns in warmer, more developed areas, particularly in the dry and warm valleys, flatland areas, and relatively warm semi-mountainous areas. This will be in coordination with the "Vegetable Basket Project," the development of animal husbandry in rural areas, and rural sanitary toilet upgrading activities. Pilot and distribution projects should also be introduced that make the comprehensive utilization of biogas and solar greenhouses the core of eco-agriculture and eco-home construction.

(4) Installation of micro-hydropower units (300W-100kW), wind power generators, and the construction of small hydropower plants in off-grid areas with good resource potential.

(5) Distribution of solar water heating systems in more developed areas with rich solar radiation. Demonstration passive solar greenhouses should be used for primary school classroom space heating in cold mountainous areas.

(6) Demonstration and dissemination of new technologies for rural energy development. Pilot biomass gasification and gas distribution units should be installed in major grain production areas where rural dwellings are relatively centralized.

(7) Support for rural energy industrial development and the consolidation of the energy service systems. Improving the economies of scale should accelerate the commercialization and delivery of new and renewable energy products while strengthening the market competitiveness of rural energy products and services. These services are then expected to foster the region's energy development.

3.1.4 Control of Pollution

3.1.4.1 Objectives

(1) To control the development of resource-destructive enterprises, encourage the development of enterprises with better economic, environmental and social benefits, and encourage clean production;

(2) To create an effective pollution control management system and operational mechanism;

(3) To bring the environmental pollution and ecological deterioration in Northwest Yunnan under control in order to achieve a favorable ecological balance and a significant improvement in urban and rural environments' for compatible economic development and ecological well-being.

3.1.4.2 Main Components

The protection of the region's waters against pollution should be a priority, not only for the improvement of urban environmental quality but for the rural areas as well. Upgrading current water treatment in the region's urban areas should occur to curb the outflow of polluted water into the vast rural areas. Water treatment in those rural areas should follow suit.

(1) To implement rigorous approval procedures for economic development projects using "environmental protection one vote veto." Any project that may be detrimental to the ecological environment, may cause pollution, or may waste resources should be prohibited. Strict monitoring and inspection procedures should be applied to any construction project so as to avoid the creation of new pollution sources. High tech-based enterprises with high profitability, clean production, and high social standing should be encouraged and supported.

(2) To strengthen the treatment of pollution sources and increase capital investment in environmental pollution control. Treatment demonstration projects should be implemented in difficult areas, focusing on urban domestic and tourism garbage treatment, comprehensive ecological restoration in mining areas, and the Dali Paper Mill. Enterprises that generate serious pollution and whose treatment methods are not up to standard should be forced to close down their operations.

(3) To strengthen water and solid waste pollution control in tourist areas, particular in the lake-type resorts and major scenic spots. Protection of sightseeing spots should be bolstered. Environmental impact assessments and "three-simultaneous" regulations in tourist areas should be implemented. The development of tourism resources should identify the objectives and requirements to ensure the construction of tourism infrastructure is in

harmony with its surrounding natural scenery. Appropriate planning for tourist routes and tourist population control to fit tourism construction must take the ecological environmental capacity of the areas into account. Avoiding redundant development of and constructive deterioration to environmentally sensitive areas must occur. The treatment of wastewater, smoke, dust, and garbage shall be scientific and must conform with the emission standards to maintain a high ecological standard in and around the tourism resorts.

(4) To strengthen protection and pollution treatment efforts on alpine lakes by developing proper solutions. This involves on-the-spot treatment of both site-specific and regional pollution sources, ecological rehabilitation, adequate water resource allocation, scientific research surveillance, and capacity building, especially in several key alpine lakes such as Erhai and Luguhu. Demonstration site projects should be created for rural regional pollution sources control using eco-agricultural measures, dissemination of low poisonous pesticides, gasifying utilization of crop residues, energy-free biological purification of village wastewater, as well as wastewater-blocking sewerage ditches, biological purification of public toilets, garbage collection pits, organic bacterial manure, etc. Investigations and demonstrations regarding soil pollution prevention should be carried out. Lists of key counties for pesticide and chemical fertilizer pollution control should be developed and issued. Environmental safety evaluations should be conducted. Efficient, low poisonous and less residual chemical pesticides should be adopted, and biological chemicals that alleviate the pollution found on grain crops and animal products should be developed.

(5) To strengthen urban environmental pollution control. The urban drainage network should be built, retrofitted and improved to separate the lines for wastewater and water supply. Urban solid waste treatment should be strengthened by creating a nontoxic garbage treatment system and setting up ecological garbage treatment sites. Air and noise pollution control should be strengthened. Clean energy resources should be promoted, vehicle emissions levels should be controlled, and noise control zones should be created in major tourist cities to ensure the improvement of urban environment.

(6) To strengthen the environment monitoring network. This involves monitoring key pollution sources, environmental quality, and the results of pollution treatment. Pollution monitoring stations at prefecture and county levels should be strengthened and increased to include more sites, particularly key regional pollution sources. In addition, monitoring frequency should be increased. Constant wastewater monitoring should take place, and ecological monitoring stations should be established.

3.1.5 Conservation of Traditional Cultures and Heritage

3.1.5.1 Objectives

During the Tenth Five Year Plan Period, six cultural reserves and fifteen cultural villages should be built, and by 2010, 60 cultural reserves/villages should be built. By fulfilling these objectives, we should be able to conserve as much of this high-value and indigenous cultural heritage as possible within the boundaries of these reserves/villages at their ecological settings, thereby ensuring its inheritance and development for future generations. On the other hand, our efforts should also aim to facilitate the economic development of the local communities and inspire the awareness of conservation, confidence and pride of local communities in their own culture heritage.

3.1.5.2 Main Components

(1) Selection of one or more cultural villages to be protected. Candidate villages should meet two benchmarks: a) be distinct in ethnic features; b) be complete in the following components: written and spoken languages, architectures, costumes, dances, handicrafts, festivals, etc. Each ethnic group should be highly respected during the process of conserving the cultural heritage, customs, religions, or other forms of worship. Efforts should be made to save or improve those ethnic groups' ways of living, their approaches to making a living and their forms of organization. Traditional cultural celebrations, other ceremonial activities or rituals should be organized on a regular basis with mass participation of the local ethnic groups. In addition, practices such as apprenticeship for cultural crafts-making, costume-making and other endeavors beneficial to the inheritance of cultures should be encouraged, including setting-ups of establishments for other special artistic creation training. School curriculum should incorporate the contents of traditional culture. Where applicable, efforts should be made to incorporate modern elements in upgrading the local cultures to enable a transition of cultures from a more primitive state to a modern and distinct stage.

(2) Establishment of a research center engaged in the conservation and studies of Northwest Yunnan's cultural heritage. A research center should be established to facilitate the salvage, excavation, survey and cataloguing of traditional cultures in various physical forms. This research center should also compile and publish cultural literature and other culture-related publications, including lists of cultural components to be conserved. Its responsibilities should also include establishing information pools and providing

research-based guidance on measures to be taken for culture conservation.

(3) Promotions of mass media, handicrafts, costume-making, architectural, foodstuff and performance sectors to engage themselves in a campaign to conserve the local cultural heritage. It is worth noting that relevant information should be put online for the public's information and publications on the local cultural heritage should be encouraged. In addition, tourism commodities produced should embody the region's cultural features. For example, each of the fifteen counties could determine one or two designs of costumes and ethnic-flavored handicrafts symbolic of the region's main ethnic groups for household processing. Traditional costume-design and construction material types could be modified to suit the tastes of modern people and arranged for production in accordance with the market demand.

(4) Promotions of the local ethnic groups' practices and customs for ecological conservation. In this regard, the local people's ideologies about worships for nature, totem and ancestry worships and relevant activities should be highly respected. Village regulations or common pledges on ecological conservation and the functions of the local residents' organizations should be recognized in helping the realization of conservation goals.

3.2 Sustainable Economic Development

3.2.1 Promotion of a Green Tourism Industry

3.2.1.1 Objectives

(1) To promote the green tourism industry, including sustainable mass tourism and ecotourism;

(2) To encourage the local residents' participation in green tourism development and make tourism one of the major income sources for the local communities;

(3) To develop the local handicrafts sector and other tourism-related sectors by taking advantage of the "ripple effect" of tourism development.

3.2.1.2 Main Components

(1) Classification and improvement of the tourist areas according to their respective functions. Potential tourist areas of Northwest Yunnan should be classified into four zones according to their transportation condition, ecological status, and respective capacity for accommodating tourists, i.e., a) Sustainable Mass Tourism Zones; b) Scale-Controlled Tourism Zones; c) Ecotourism Zones; and d) Restricted Zones. With the tourist areas classified and improved, we can build Northwest Yunnan into a well-organized tourist hotspot with distinct ethnic flavors;

(2) Upgrading of the sustainable/cultural mass tourism zones in urban areas such as Dali, Lijiang and Zhongdian. Urban areas in Northwest Yunnan represent the region's commercial hubs and gateways to ecotourism sites for tourists interested in ecotourism. Accordingly, these areas should be developed to meet the increasing demands of tourists for better hospitality facilities and modern amenities. In developing the areas, sustainability should always be one of the underlying principles for economic development. In addition, efforts should be made to build more hospitality facilities in these outlying areas in order to shift the pressures of over-capacity from urban areas, particularly Dali and Lijiang, to these adjacent towns.

(3) Strengthening the construction for environmental protection and tourist entertainment purposes in such scale-controlled tourism zones as Yulongxueshan, Cangshan-Erhai, Bitahai, Lugu. These areas represent not only the region's most important cultural destinations but are also the most significant in terms of biodiversity. In developing the areas for tourism, emphasis should be made in controlling the number of tourists admitted.

(4) Development of ecotourism in Meilixueshan, Laojunshan, Qianhushan, Dulongjiang, Nujiang Canyon and other areas. These areas represent the region's most ecologically-sensitive or vulnerable locations. In developing ecotourism in these areas, efforts should be made to upgrade the conditions of the existing roads/trails to ensure the safety of tourists, especially those game for adventures. Building more rest areas for the benefit of tourists should also be a priority. In planning and developing the aforementioned areas, particular attention should be paid to the adoption of measures for ecological conservation purposes.

(5) Designation of restricted areas. Core areas in future national parks or nature reserves should be designated as restricted areas. Those areas that have the potential for further development but are presently unsuitable for development should be excluded for the time being from the development packages to ensure future development strengths;

(6) Promotion of global public awareness of Northwest Yunnan. Effective marketing tools should be employed to promote the public awareness of the region while increasing the current scale of ecotourism. In this regard, the declaration of 2002 as "The year of Ecotourism" by the United Nations should be used as a favorable opportunity to market the name of Northwest

Yunnan as the world's best destination for ecotourism. Rate levels should be developed to differentiate ecotourism sites from mass tourism sites.

(7) Union of green tourism and cultural tourism. Efforts should be made to link green tourism with cultural tourism by elaborately increasing the spectrum of tourism activities, such as arrangements for tourists to visit those cultural villages. Cultural villages, in turn, should be improved in order to attract more visitors. In this way, the local ethnic people could benefit more from tourism activities featuring their own culture heritage.

(8) Development of tourism commodities that embody the cultural elements of local ethnic groups. Efforts should be made to develop ethnic-flavored tourism commodities to increase the economic benefits of local people and reduce their levels of dependence on those commercial products brought in from outside the region.

3.2.2 Development of an Innovative Bio-Resource Industry

3.2.2.1 Objectives

Effective protection requires supporting the development of seven types of bio-resources through a). sustainable use of existing bio-resources, b). the introduction of advanced technologies of domestication, cultivation and process, c). active participation of farmer households, and d). production and marketing arrangements with benefit-sharing systems. Research on these aspects should be encouraged. The goal is to develop a bio-resources based industry as a fast-growing and beneficial alternative industry to most people in Northwest Yunnan.

3.2.2.2 Main Components

To establish three production bases to be used for organic or green food, quality Chinese medicine, and bulb flowers for export, respectively, as well as three industry chains including animal husbandry industry, cash tree crops and forestry chemical products. All these should help to form a unique Northwest Yunnan economy.

(1) Production of a flower industry

In both Diqing and Nujiang prefectures, alpine botanical gardens and bases should be

established for the introduction and domestication of alpine flowers on mountains with an elevation over 3,000m. In addition, bulb flowers and seeds of other flowers in temperate region at 2,000—3,000 m asl should be produced, and nurseries should be developed to produce seedlings and plants with leaves for ornament in the sub-tropical area at 1,100—2,000 m asl. A base for study and breeding of rare flowers in Dali and Eryuan counties should also be created.

(2) Animal husbandry industry

a) To implement an ecological grazing land management program in Diqing, Nujiang and Dali prefectures, including a responsibility system for grazing land management and a mechanism for using grazing land as a means of preventing degradation and desertification of grazing lands while increasing their productivity in the Tenth Five Year Plan Period (2001-05).

b) To develop a processing industry for animal husbandry products in Zhongdian, Deqin, Dali and Eryuan counties in order to improve product quality and increase market share of local milk products.

c) To establish a fixed wholesale market outlets of cattle, cow and goat and sheep that should provide market information and services such as processing, quarantine and disease prevention and control in Dali and Lijiang.

d) To develop a system for the breeding of superior varieties of poultry and livestock and the prevention of diseases in Zhongdian, Deqin, Ninglang and Gongshan.

(3) The green food industry

a) To increase the cultivation area of buckwheat, barley, oat, and beans in cold areas in high mountains in Diqing and Lijiang prefectures during the Tenth Five Year Plan Period.

b) To promote large-scale cultivation and processing of wasabi and conjunku in Dali and Lijiang.

c) To establish a demonstration base for research, conservation, processing and

industrialization of forest vegetables and edible mushrooms and fungi in Deqin, Zhongdian, Lijiang, and Jianchuan counties.

d) To develop a mechanism to protect gene resources and habitat of matsutake and other wild edible mushrooms and fungi in the region.

e) To develop a fruit processing industry in Lijiang, Eryuan, Dali and Weixi counties to produce a variety of preserved fruit products.

(4) The selection of Chinese medicinal species with large production potential in a period of ten years, and the establishment of cultivation bases for *Taxus* and other medicinal species as well as processing enterprises in Dali and Lijiang.

(5) The establishment of a forest chemical products industry. Bases for pine resin harvesting in Lijiang, Diqin, Nujiang and Dali during the Tenth Five Year Plan Period should be developed, and processing plants of resin in Lijiang, Fugong, Lushui, Dali, and Lanping counties should be established to improve capacities for products processing, while improving Fugong County's tung oil processing capacity.

3.2.3 Modernization of the Region's Mining Industry

3.2.3.1 Objectives

In keeping with the principle that priority should be given to regulation/reconstruction and attention to nature conservation, development of the mining industry should be based on environmental circumstances where mining enterprises are located. Mining in areas with good ecological conditions should not be exploited, mining in areas with ecological functions should be closed or reconstructed, and mining in areas where resources are allowed to be exploited should be developed with foreign/external funds and technology to create large enterprises, with pollution being strictly controlled.

3.2.3.2 Main Components

Insistence on the guidelines that encourage the development of large mining enterprises and reduce number of small enterprises. Domestic and foreign funds, advanced technologies and management should be used to develop mining procedures that are easy to develop,

contain rich reserves and possess considerable market demand. Those small mining enterprises that may cause environmental pollution should be closed. Compatible development between mining development and nature conservation should be aimed for.

(1) The reconstruction of the existing mining enterprises using new and advanced technologies in Diqing during the Tenth Five-Year Plan Period and, in the meantime, improving conditions for industry development to play a role in the evolution of these existing large mining enterprises. The area should be developed as a basis of non-ferrous metal mining including copper, tungsten, beryllium, etc. in China in the short to long term.

(2) The acceleration of technical improvement in existing mining enterprises in Lanping through the use of foreign funds. By aiming at the environmental problems that have occurred, focus should be on environmental rehabilitation and vegetation restoration in Jinding Mining and the minimization of mining development impacts on local ecotourism and bio-resources development in Luoguoqin. The area should be developed as a base of non-ferrous metal mining including lead, zinc, copper, and strontium in Yunnan in the short to long term.

(3) The closing of enterprises that cause pollution to key scenic areas and the conservation of biodiversity and cultural diversity in Dali, Lijiang and Nujiang. The whole area should be developed as a mining development base of non-metal construction materials.

3. 2. 4 Promotion of Training and Educational Opportunities for the Region's Population

3.2.4.1 Objectives

To improve the capacity of local people by strengthening efforts in fundamental education, vocational and technical education, and adult technical training; to increase the population of technical/professional personnel; to improve the management capability, expertise and the awareness of conservation, among workers from the public service, management personnel and local residents as a whole.

3.2.4.2 Main Components

(1) Strengthening of fundamental education. Efforts should be made to increase the existing capacities of boarding schools and semi-boarding schools for more enrollment capacity. More emphasis should be put on compulsory education of local children and eliminating illiteracy among local adults below 50 years of age. Apart from in-school education, mass media such as radio and television should be employed for long-distance fundamental education. In addition, vocational education and adult technical training should be technique-focused and the development of such schools should be strengthened;

(2) Education on environmental protection/ecological conservation. Local elementary and secondary school curriculums should include the contents of ecological and cultural conservation and related courses should be offered to the local school students, for which materials should be prepared. On the other hand, efforts should be made to promote the awareness of environmental protection/ecological conservation among workers from the public service and local communities alike. In this regard, workshops or other forms of training for the local people should be held on a regular basis.

(3) Technical/professional training. All training programs should be carried out under the framework of the conservation of biodiversity and cultural diversity, and compatible economic development. Therefore, there could be a great need for conservation related technical, management and professional personnel, such as those in environmental protection, tourism, and bio-resource innovation areas. Training could be diversified and should be encouraged so long as it is conducive to conservation. Those people who have made outstanding contributions to the conservation mission and compatible economic development should be offered material rewards or given public recognition so as to encourage others to follow their example. In line with the framework of conservation and compatible economic development, trainings could be focused on such areas as sustainable agriculture, forestry management and forestation, animal husbandry (including animal feed planting), intensive farming products processing, irrigation and soil preservation, rural alternative energy utilization, ecological and cultural conservation, and tourism. In this way, an efficient and effective conservation and economic development network could be established in Northwest Yunnan.

(4) Extensive recruitment of outside qualified personnel. Efforts should be made to attract qualified personnel to work or start up businesses in the region. Forms such as job fairs and advertisements in mass media could be employed in this regard. Governments should develop as many viable projects as possible for outside potential investors' information, who could take part in the local economic development by direct or indirect investing and contracting.

Moreover, projects developed for attracting foreign investment and those developed by academic institutions should be channeled for the benefit of Northwest Yunnan's local people.

3.2.5 Urbanization and Transportation Infrastructure Construction

3.2.5.1 Urbanization

3.2.5.1.1 Objectives

To push Northwest Yunnan's current urbanization drive forward and to attract more rural labor to alleviate the ever-increasing pressures of their dependence on the region's eco-environment. In this regard, full play should be given to the development of such current commercial centers as the seats of prefecture, county and township governments around the region, making such central towns as Dali, Lijiang, Zhongdian and Liuku, in terms of their functions, complementary to each other. By developing these towns, rural labor living in sparsely-populated areas could be brought together in these towns on a voluntary basis. Meanwhile, particular attention should be given to the planning and construction of these towns into tourism centers while shifting the mounting pressures from the region's eco-environment to these urban tourist sites. This will reduce the scale of possible destruction to the region's eco-environment and cultural heritage.

Specifically, Dali City should be built into a medium-sized city commensurate with its increased population and eco-environment accommodation capacity in the next twenty year. From now on, Dali City should function as one of the leading centers in the region in spurring the development of the local economy, education and other aspects of the adjacent areas.

In accordance with the requirements of conservation and compatible tourism development, efforts should be made to protect cultural towns like Dali, Lijiang, and Xizhou and their ancient grandeur as symbolized by their architectural styles.

Efforts should be made to improve the infrastructure and speed up the development of local economy by encouraging businesses from inside and outside the region to invest in Northwest Yunnan.

3.2.5.1.2 Main Components

Dali: Four programs should be implemented, i.e., programs for information technology, urban environmental protection, transportation upgrading and capacity building; besides, tourism and trade sectors should be highly promoted. With all these efforts, hopefully, we would be able to build Dali City into the commercial and cultural hub of Northwest Yunnan and a first-rated tourism center both in China and the world over.

Lijiang: Three programs should be implemented, i.e., programs for tourism info network, ecological conservation and urban image upgrading. Focus should be on tourism, foodstuff processing and bio-resource utilization sectors. Besides, renovation and expansion of the new town should be sped up further and the protection of the Lijiang Ancient Town be put at the top of the agenda as it has high potential for becoming a world class tourist resort.

Zhongdian: Emphasis should be put on the development of foodstuff processing, animal husbandry, and Tibetan medicine sectors. By fostering the development of these sectors, we could build Zhongdian into an alpine Tibetan culture tourist town specializing in the production of livestock farming products and forest sideline products.

Liuku: Emphasis should be put on foodstuff processing, hydropower generation and tourism. By promoting the development of these sectors, we could build Liudu into a tourist hub supportive of the tourism development around the Nujiang Canyon area.

Er'yuan: Efforts should be centered on the development of Cibihu tourist site and Er'yuan town spa. In addition infrastructures such as hospitality facilities around the county's tourist destinations should be renovated. Er'yuan should be built into a tourist destination and a foodstuff processing center.

Bingchuan: Tourism facility construction should be the major concerns of the local people for the next few years. Within the next few years, the county should be built into a foodstuff processing center and a tourist destination.

Yunlong: Focus should be on farming products processing. Within the next few years, the county should be built into a foodstuff processing center.

Heqing: Development of local produce and ethnic handicraft sectors should be the focus

for the next few years. Building Heqing into a center of ethnic handicrafts and foodstuff processing should be a target of the county's economic development.

Ninglang: Tourism and farming products processing sectors should be promoted in the county. The future Ninglang should be built into a tourist destination.

Deqin: Tourism facility construction should be sped up, together with the development of forest sideline and farming products processing as well as tourism in the region. The future Deqin should be made into a tourist destination featuring snow-capped mountains.

Weixi: Tourism and farming products processing sectors should be promoted in the county. The future Weixi should be developed into a tourist destination.

3.2.5.2 Transportation Infrastructure Construction

3.2.5.2.1 Objectives

To develop a highway network to facilitate the conservation tasks, compatible economic development and social development of Northwest Yunnan. The underlying principles: a) ecological conservation should always be a precondition in the construction process; and b) highways could never be built through the core areas of the protected areas.

3.2.5.2.2 Main Components

Roads to be built during the Tenth Five Year Plan Period:

(1) Upgrading of Inter-province 214, including the Lijiang-Zhongdian Grade 2 highway and Zhongdian-Deqin Grade 3 highway

(2) Upgrading of the Panzihua-Lijiang-Lanping-Liuku highway, including the Panzihua-Lanpin Grade 2 highway and the Lanping-Liuku Grade 3 highway.

(3) Upgrading of the Lancang River tourism highway (Gongguoqiao-Jiuzhou-Yingpan-Weideng-Baijixun-Yezhi-Yanmen-Deqin).

(4) Construction of the Yongbaoqiao-Liuku highway.

The last component is the feasibility studies for the future construction of Bingzhongluo (Gongshan County, Yunnan)-Chayu (Tibet) highway.

4 ACTIONS

4.1 Create an Innovative Model for Conservation and Development in NW Yunnan

4.1.1 Establish a Special Conservation Zone (SCZ) in NW Yunnan

In order to effectively conserve the globally significant biological and cultural diversity, as well as the special function of the area as a watershed, it is proposed that a special conservation zone (SCZ) be established in Northwest Yunnan. It is hoped that the establishment of such an SCZ, which would cover the total area of 15 counties in four prefectures, could help eliminate existing conflicts between conservation and economic development arising from the current management system. Within the future SCZ, special preferential policies could be applicable, with special financial or other support from the Central Government, to conservation and the compatible economic development of the region. This would create a model not only for Northwest Yunnan's sustainable economic development with conservation as a precondition, but also as a demonstration site for other provinces and regions affected by the Western China Development Initiative.

(1) An SCZ is a special region especially reserved for the recovery or upgrading of its ecology, where conservation takes precedence over all other activities. Any activities that could do harm to the region's ecology should be prohibited completely, while those that are conducive to conservation should be supported or given public recognition;

(2) All economic activities in the SCZ should be in accordance with the criteria set for conservation. Targeted systems and regulations should be formulated for appraisal for development projects to be implemented. An enterprise liquidation system characterized by a yardstick of conservation infringement for liquidation should be introduced and put into effect against any businesses engaged in activities detrimental to ecological conservation;

(3) An SCZ is also a special region reserved for the promotion of ecologically-conscious

projects, such as the project known as “eco-home”, that will be implemented throughout the country. It is hoped that the ‘*Eco-home Project*’ be set up under the auspices of both the provincial government and the Central Government.

4.1.2 Establish a NW Yunnan Conservation and Development Decision-Making Mechanism

Establishment of the Northwest Yunnan Administrative and Reconciliatory Committee (NYARC).

The Northwest Yunnan Administrative and Reconciliatory Committee (NYARC) should be responsible for:

- a) providing guidance on the overall planning for economic development projects compatible with conservation, geographical distribution of industrial development and introduction of outside funds;
- b) reconciling conflicts and issues arising from the implementation of specific projects between interested parties from different counties or prefectures;
- c) supervising the construction and operation of key projects.

Under the NYARC, three subcommittees charged with different responsibilities should be formed, including:

(1) Expert Consulting Committee (ECC).

Consisting of interdisciplinary experts well-versed in all aspects of Northwest Yunnan, the ECC should be responsible for providing technical support and serving as consultants for decision-making. These crucial decisions will involve the conservation of Northwest Yunnan’s biological and cultural diversity, the region’s social development and compatible economic development, which may have a great impact on the livelihoods and well-being of the local people. In addition, experts from ECC should keep track of and study the causes of issues arising from the implementation of specific projects.

(2) Culture Village(Reserve)Council (CVC)

The CVC should be responsible for overseeing and ensuring that the culture villages building process goes smoothly.

(3) Green Tourism Council (GTC)

Composed primarily of representatives from the Yunnan Provincial Tourism Bureau, the GTC should also include representatives from relevant provincial level government agencies, prefecture and county governments, and the business community. Representatives from those international organizations, such the World Tourism Organization and The Nature Conservancy, whom are capable of providing guidance on the planning and initiation of projects that encourage the adoption of green tourism practices, particularly those that may be extended to all of Yunnan Province or the rest of China in the future, will also be invited.

4.1.3 Establish a Comprehensive Nature Reserve and National Park Management System

(1) The classification of nature reserves in the region using the criteria proposed by IUCN as reference, the planning of nature reserves and managing them by applying internationally recognized site conservation planning (SCP), the use of community participatory management, and the expansion of the approach to larger areas if it is proven effective.

(2) The establishment of a perfect system of national parks and nature reserves. The perfect system should consist of a specific law for any nature reserve, unified administration rights and responsibility, participation by all stakeholders in management, a separation of administration/governance of nature reserves from its business operations, different policies and management objectives for different nature reserves, and the coordination of development between national parks and nature reserves and communities in surrounding areas. Specifically:

a) The formulation of rules and regulations catering to each of the conservation units, be it a nature reserve or national park. Provisions should include boundary, management objectives, and management institute of nature reserves. These rules should form the

basis on which the nature reserve is administered and governed.

b) The administration of a nature reserve by only one institute that has rights, granted by the law, to administer all affairs in the nature reserve.

c) The participation of all stakeholders, including the nature reserve's supervisory body, developers, communities, land owners/users, government, NGOs and other home and abroad institutions in management, in an effort to encourage their incentive for the conservation of biodiversity and cultural diversity.

d) A separation of administration and business management. The administration institute of a national park or nature reserve should not be involved in any business management within the park or reserve but instead should contract business management out to an enterprise or enterprises through bidding. Income from the business management should be used for conservation of the nature reserve or national park.

e) The management of different objectives for different types of nature reserves based on their respective resources features and sensitivities, and the subsequent planning and management policies to be used for each type of nature reserves. All the national parks and nature reserves in Northwest Yunnan should be classified into eight types with the criteria proposed by IUCN as reference: 1). strictly protected nature reserve, 2). wildland reserve, 3). wildlife sanctuary, 4). national/provincial park, 5). protected natural landscape, 6). protected human landscape, 7). protected culture village or culture reserve, and 8). well managed resource reserve area.

f) Development coordination. Attention should be paid to relations between nature reserve systems and urban systems, between nature reserves and communities in the nature reserves and their surrounding areas. A fair mechanism for benefit sharing should be developed.

4.1.4 Establish a Community-Based Resource Co-Management Mechanism

(1) The development of a co-management mechanism that is equitable and beneficial both to nature reserves/national parks and communities in the reserve as well as surrounding areas. Communities should be encouraged to actively participate in the planning and decision-making on management, in resources protection, forest fire

prevention and control, and nature reserve security. Communities should benefit from the participation. Co-management organizations should take full advantage of local indigenous knowledge and management institutions, and bring into full play village committees, household heads meetings, senior people associations, women organizations, religion fellows (e.g. *Dongba*, *Bimo*, Living Buddha, and monks/nuns) and religion organizations such as Buddhist association and Christian groups, and community NGOs in conservation and the management of natural and culture resources.

(2) The ensuring of rights and benefits of communities in nature reserves and surrounding areas. Owners of collective lands, forests water body, grazing land in nature reserve should share benefits with nature reserves. Systems involving owners' rights to land use and rights to manage resources, and shareholding should be established. Each party or shareholder should be made to share benefits generated from entrance fees and resources compensation fees. In the meantime, creating alternative livelihood sources for local residents through effective measures for protection and sustainable uses of natural resources should be established.

4.1.5 Consolidate Transfer of Land Use Rights and Forest Tenure Policies and Establish a Concession Mechanism

(1) The allowance of free transfer of land use rights on the basis of clear boundaries to encourage transfer of croplands to skilled and capable farmers and forest lands to those who are skilled in tree and plantation establishment. Term of leasing land use rights should be extended to 100 years to ensure the rights and benefits of land managers and to prevent the excessive and unsustainable exploitation of resources.

(2) The enforcement of forestland and tree titles. The established rules regarding forest titles should be strictly enforced, and the regulatory authority of forest certificates issued to farmer households should be safeguarded. In addition, the certificates proving ownership of over 700,000 hectares of state-owned and collective forests should be issued as soon as possible. Regulations or administrative provisions regarding the transfer of trees and forestland use rights should be formulated by prefecture governments as soon as possible to regulate the transaction of trees and land use rights. The supervision and approval of forestland conversion to other purposes to control forestland losses should be strengthened, as should the approval process of cutting quota to prevent excessive forest harvesting.

(3) The consolidation of forest management policies. The policy for family plots (*ziliushan* in Chinese) and responsibility hills (*zerenshan* in Chinese) should be insisted upon, and shareholding systems in forest management should be developed. Based on the principle that separates use rights from ownership and distributes forestlands to farmer households in the form of shares rather than actual physical distribution, encouraging farmers and collective economic organizations to pool their resources such as forestland, trees, technology, capital investment and labor should create shareholding forest farms and increase the management scale.

(4) Business management in nature reserves and national parks. Business management should be commissioned to contractors through public bidding. Only one contractor, either institute or individual, should be selected for business management in one nature reserve or national park. The contractor should be qualified for business management in nature reserves and national parks. The purpose should be to regulate types and size of business development, effectively stop or prevent excessive development and irregular competition, and ultimately avoid damage to resources and environment in the region in general and in nature reserves and national parks in particular.

4.1.6 Establish a Cultural Heritage Preservation System

(1) Zoning of culture villages/reserves. The zoning of culture villages/reserves should be conducted in accordance with the principles of highlighting the completeness and intactness of each site's living districts, ecological settings and particular attractions, as well as being subject to the regional administrative jurisdiction. A culture village/reserve should include such areas as a living area, a crop cultivation area and/or an animal husbandry area, and a forestry area and/or a fish farming area.

(2) Funding for culture villages/reserves' construction. It is proposed that an amount of at least RMB 50,000,000 be appropriated annually by the provincial government for the construction of culture villages/reserves in Northwest Yunnan. In addition, preferential policies in land uses, loan grants, and tax cuts and/or breaks should be applicable to those organizations or individuals who invest in culture-related projects or initiate such projects with the local cultural resources.

(3) Promotion of culture villages/reserves as a tourism resource. Tourism embodied with ethnic cultural elements and culture-related economic sectors should be highly promoted to make them the region's pillar industries. It is proposed that provincial government grants

be offered to Northwest Yunnan's impoverished areas to start up their own tourism businesses until they have accumulated adequate financial strengths to become commercially-run enterprises.

(4) Introduction of outside resources. Through marketing and strengthening of collaborations with relevant institutions and organizations from home and abroad, we should introduce outside resources such as funds, technologies, qualified personnel and management expertise to boost the construction of the region's culture villages/reserves.

(5) Certification for cultural products and traditional artists. The aforementioned **Northwest Yunnan Administrative and Reconciliatory Committee (NYARC)** should be empowered to perform the certification for cultural products and traditional artists. In performing their duties, the **NYARC** members are required to make surveys and assessments before a verdict is made on certification matters. In addition, the **NYARC** members should also be responsible for finding financial support to promote the development of certified cultural products.

4.1.7 Establish an Effective Conservation Financing System

An effective multi-channeled conservation financing system should be created to facilitate conservation in Northwest Yunnan. This system should include:

(1) Government Appropriations: a) ecological benefit compensation repayments; b) compensation for business subsidies; c) investments in cropland afforestation and reforestation that benefit the public; d) infrastructure investments; e) investments in education and poverty alleviation projects; and f) others.

(2) Bank Loans for policy considerations: a) government-subsidized loans for interest;) b) loans for bio-resource utilization projects; c) loans for infrastructure upgrading projects; d) loans for poverty alleviation; and e) loans for projects that will benefit the public. In this regard, preference should be given to those conservation-conscious SMCs to leverage more private funds.

(3) Repayable funds from the public contributions. Repayable fund-raising should be encouraged to help develop the local economy.

(4) Introduction of foreign investment. Those commercial projects to be implemented should be incorporated in the provincial foreign investment office's catalogues to attract foreign funds. Examples of ownership forms that could be employed include foreign sole ownership, Sino-foreign joint ownership, and where applicable and allowed, foreign controlled joint ventures. In terms of development modes, BOT, TOT and project implementation on loans from international financial organizations and foreign governments are also applicable. Infrastructure projects implemented by foreign investors such as highway building, hydropower and irrigation facility building should be encouraged.

(5) Funds from securities markets. Enterprises with bio-resource utilization projects should be encouraged to "go public" or to offer their equity shares to the public for capital in the securities markets.

(6) Trust funds: Efforts should be made to establish conservation trust funds to finance the conservation pilot projects to be implemented in Northwest Yunnan. In addition, governments at all levels should try their best to encourage business entities, organizations and individuals from both home and abroad to invest in these funds.

(7) Green industries investment funds. These funds should be earmarked for the credits, investment guarantees and the start-up capital of the region's small to medium-sized companies engaged in bio-resource utilization sector and tourism.

(8) Financial support from the public. Efforts should be made to win as much financial support as possible from the public to facilitate conservation.

(9) Income from lottery ticket sales. A lottery could be introduced to raise funds from the public for conservation.

4.1.8 Establish Mechanisms for Ecological Benefit Compensation and Resource Use Fees

In order to safeguard Northwest Yunnan's ecology and the interests of the local people, mechanisms for ecological benefit compensation and resources use fees should be created. These created mechanisms, where applicable, could be both long-term and short-term and the benefits of the local communities, businesses and different prefectures and counties should be taken into account.

(1) In consideration of the region's ecological service as a watershed and the contributions made in conserving the region's ecology and its impact on the safety of the people inhabiting the lower reaches of these great rivers, it is proposed that the Central Government and the Yunnan Provincial Government earmark funds for the conservation endeavors of the local governments and residents.

(2) In consideration of the local residents' actual economic loss incurred by the conservation endeavors, it is proposed that the Central Government make efforts to effect compensation repayments to the region and formulate made-to-order regulations on repayment execution.

(3) It is proposed that governments at all levels effect support in terms of policies, financial resources and tax breaks or cuts to the local communities in their efforts to develop new alternative industries.

(4) It is proposed that, to finance the conservation tasks, utilization of natural resources be taxable, i.e., any businesses or individuals that use the region's natural resources in a direct manner should be required to pay fees.

4.1.9 Strengthen Financial Support and Preferential Tax Policies

(1) It is proposed that investment in the projects that benefit the public should be made part of the Central Government and the provincial government's annual budgets. Public beneficial projects include those for forest fire prevention, plant disease prevention and pest control, wildlife protection, tree seedling breeding, natural forest protection on the upper reaches of the Yangze, Mekong and Salween rivers, key national ecological upgrading construction, reforestation of croplands and alpine meadows, general afforestation, etc. Moreover, it is proposed that of the total project budgets, the prefecture and county governments provide no more than 10% of the total investment.

(2) To shift pressure from the local residents' hillside cultivation for croplands and to guarantee the viability of the reforestation campaign, efforts should be made to increase the scope of the "labor and crop turn-over for support" practice. This practice requires farmers to lend support to public beneficial programs by either providing labor or surrendering certain amount of crop to government authorities responsible for the programs' implementation. Those local residents inhabiting the desolate and barren areas

unfit for human survival could be relocated on a voluntary basis to the more developed urban areas. Where applicable, newcomers should be given due support.

(3) To foster the development of the afforestation and animal husbandry sectors, preferential policies should be applicable to loan grants. The time limits of loans could be extended and more low-interest loans could be granted to the local businesses or individuals engaged in the business.

(4) For those engaged in the development of desolate hillsides, wasteland and wilderness for economic benefits, it is proposed to exempt them of income tax and agricultural produce tax within five years. Agricultural produce tax should be taxed on lumber and bamboo product only at the point when products are first sold at a rate below 4%. For those businesses engaged in the production of forest sideline products, it is proposed that a VAT collection-and-immediate-return policy be effected. Moreover, it is proposed that income tax exemption policies for economic activities of government-sponsored entities engaged in forestry and agriculture sectors be extended to the future time. These entities include state-owned forest farms, state-owned seedling nurseries, rural agrotechnical stations, forest administrative stations, veterinary clinics, agromachinery stations, etc. In addition, it is proposed that economic activities for animal husbandry farming and livestock slaughter should be exempt from the animal husbandry tax and livestock slaughter tax within five years. After the exemption period is due, tax rates could be lowered. Local economic loss due to tax breaks or exemptions should be refundable by the provincial government.

(5) It is proposed that the Central Government should, in its package of restructuring the country's tax system this year, take into account further preferential tax policies applicable to economic activities taking place in Northwest Yunnan to facilitate conservation.

4.1.10 Consolidate the Regulatory System

(1) It is proposed that “*the Rules on Construction and Management of Northwest Yunnan Special Ecological Zone*” and “*the Regulations on Ecological Benefit and Resource Use Compensation for Northwest Yunnan*” be drafted and submitted by the Provincial People's Congress to the National People's Congress for ratification; “*the Rules on Concession of Management of Northwest Yunnan Nature Reserves and National Parks*” and “*the Rules on Construction and Management of Culture Villages/Reserves of Northwest Yunnan*” be formulated and promulgated by the Provincial Government; and “*the Regulations on*

Establishment and Management of Funds for Biological Diversity Conservation and Compatible Economic Development of Northwest Yunnan” be formulated and promulgated by the Provincial Government.

(2) It is proposed that amendments be made to the currently effective “*the Provisions of Yunnan Province on Implementation of the National Forest Law*” , “ *the Regulations of Yunnan Province on Rare Tree Species Protection*” and “*the Provisions on Compensable Development of Desolate Hillsides*”.

(3) It is proposed that the currently effective “*the Provisions of the Yunnan Provincial Government on Protection of Forest Resource for Forestry Development*” and “*the Provisional Regulations of Yunnan Province on Protection of Rare and Endangered Plant Species*” be abolished.

4.2 PROMOTE MULTIMODAL USES OF ALTERNATIVE ENERGY SOURCES AND SUSTAINABLE ECONOMIC DEVELOPMENT OF LOCAL INDUSTRIES

4.2.1 Establish a Complementary System for Supply and Consumption of Alternative Energy Sources in Rural Areas

(1) To carry out the implementation activities on alternative energy projects in line with the principles for rural energy development of “suiting measures to local conditions, making different sources mutually complementary, utilizing in a comprehensive way and seeking for benefits” and “putting equal stress on development and conservation.” This should be based on the dissemination and service framework established by the rural energy sectors of the government and in close cooperation with academic institutions and government agencies at various levels responsible for agriculture, forestry, poverty alleviation, rural electrification, and rural energy development. Technologies that “substitute fuelwood with electricity, coal, or gas” should be introduced to increase the use of conventional energy sources like electricity, coal and gas in rural areas.

(2) To investigate energy resources and the consumption levels in rural areas to learn the current households’ demand for various energy sources and the energy conservation potential of various energy-consuming facilities. Alternative energy projects, including hydropower, coal, solar energy, and biogas, should be developed and carried out in the project areas in accordance with the energy resources availability, energy consumption structure, and the requirements on energy supply by socio-economic development and ecological environmental protection. Energy substitution approaches should be worked out to meet the energy demand of cooking, space heating, lighting, and other productive and household activities. The sustainability and techno-economic viability for and impact of social factors on implementation should be evaluated. Suitable technology dissemination

after pilot projects and demonstrations should occur since the economic benefits and subsequently higher rates of investment return generated by the launching of pilot projects will encourage the enthusiasm of local governments and villagers to engage themselves in the rural energy development.

(3) To retrofit major fuelwood-consuming facilities. Energy-saving retrofitting of major fuelwood-consuming facilities should also be made a priority based on the principles of “first focus, then generalize,” “demonstration ahead of dissemination,” and “fan out from points to area.” This will alleviate the pressure on forest resources resulting from fuelwood consumption, improve the ecological environment, and enable the creation of a sustainable energy supply system.

(4) To develop the rural energy industry by making full use of the favorable policies and support of various levels of government on rural and renewable energy development and energy conservation retrofitting.

(5) To demonstrate and implement the alternative energy projects in established and planned nature reserves as well as future national parks. These projects will then be disseminated to surrounding communities.

4.2.2 Establish an Effective Mechanism that benefits a Green Tourism Industry

(1) To establish a Green Tourism Certification program. Green Tourism Certificates should be issued to tourism enterprises that could promote environmental and cultural protection and benefit local people’s livelihoods. The issuance of Green Tourism Certificates should be organized and authorized by the Green Tourism Council. Only enterprises holding Green Tourism Certificates should be allowed to operate eco-tourist services. This Green Tourism Certificate program should be promoted gradually in the tourism industry.

(2) To set up demonstration projects for green tourism, eco-tourism, and cultural tourism. Internationally advanced planning, management and operation models should be introduced. Demonstration projects should be set up, first at Meili Snow Mountain and Laojunshan, and then distributed gradually in the project area.

(3) To initiate a local capacity building program for green tourism. Training on the principles and practices of green tourism should be organized to improve the capacity of engaging personnel. A green tourism manual should be compiled and training courses organized on eco-tourism planning and services. Field trips for fact-finding purposes should be organized both at home and abroad for relevant people. In addition, collaboration between local and international operators should be initiated to explore itinerary possibilities in the region.

(4) To improve tourism policies and management regulations. Entrance fee standards,

regulations for development and operations, and a tourist code of conduct should all be established and based on the grade of tourism resources and environmental carrying capacity as a means of alleviating the adverse environmental and socio-cultural impact of tourist operations.

4.2.3 Formulate Industry Policies that Benefit Conservation

Northwest Yunnan should be zoned into the following categories: ecologically healthy areas, ecological function areas, and areas planned for resource development. Within the ecologically healthy areas, the closing-ups and upgrading of pollution-prone businesses should occur. Large scale development activity should not be allowed to take place in the second category of areas. The last category should be targeted for external capital and technology for intensive development while keeping pollution in check. This area should also be used to foster industries that make more contributions to the local economy.

(1) To forbid any industry that destroys the environment, such as the collection and processing of rare and endangered animals and plants, mining in places with vulnerable geological conditions or unclear deposits, and paper mills without a forest base for logging.

(2) To eliminate industries with high resource consumption intensity, low value added product, and high environmental costs such as iron and steel metallurgy and processing, inorganic chemicals, pesticides, small-scale and low-efficient production of chemicals, mining, metallurgy, building materials, etc.

(3) To withdraw forestry industries engaged in logging, wood transportation, wood processing, and crop planting on steep slopes over 25 degrees. The withdrawal should be well-planned in terms of scale and schedule while keeping in mind local community's bearing capacity for the loss incurred. The affected enterprises and farmers should be provided reasonable compensation as well as technical and capital support in their move to alternative industries.

(4) To encourage industrial development on sustainable tourism, innovative bio-resource exploitation, clean energy, and water resource exploitation. Support for the above-mentioned industries should be provided in terms of finance, tax exemptions and loan policies.

(5) To compile a catalog of banned, eliminated, and withdrawn industries and formulate strict administrative, legal, and economic disciplinary measures.

Relevant provincial departments as well as prefecture and county governments in the project area shall formulate detailed implementation plans, strategies, countermeasures, and programs in accordance with this Action Plan and report to the provincial government for approval.

5. Proposed Projects

Table 1. Study and Establishment on NW Yunnan Ecological Special Region related System, Laws and Regulations

Project title	Components and Coverage	Indicative budget (RMB.000)	Fund source	Implementing institutions	Schedule
1. Establishment of the integrated decision-making mechanism for Conservation and Development in NW Yunnan	To establish Northwest Yunnan Administrative and Reconciliatory Committee (NYARC)	500	Government allocation at different levels	YPC and related provincial government departments	2001-2002
2. Formulation of innovative industrial policies	To formulate the policy for the enterprises that should be forbidden, winnowed, withdrawn or encouraged	500	Provincial government allocation	YPC	2001-2002
3. Establishment of an ecological benefit compensation mechanism	To formulate the policies, regulations and rules for the ecological benefit compensation mechanism	1,000	Provincial government allocation	YPC	2001-2002
4. Establishment of a resource consumption charging mechanism	To formulate the rules for levying resource consumption fees	1,000	Provincial government allocation	YPC	2001-2002
5. Establishment of a preferential policy system	To formulate the preferential policies and consolidate the policy for land right transferring and forest tenure.	500	Provincial government allocation	YEC, YLRD, YNTB, YLTB, YFD	2001-2002
6. Establishment of a concession mechanism for nature reserves and national parks	To formulate the rules for concession operation in nature reserves and national parks	500	Provincial government allocation	YEPB, YFD, YCD, YTB	2001-2002
7. Formulation of policy and regulations for culture conservation and development	To formulate the rules for culture reserve (protected village) construction and management; to consolidate minority traditional knowledge succession mechanism; to formulate the plan for adequate tapping minority culture resource; to formulate the policy for minority culture enterprise development	500	Provincial government allocation	YNC, YCB	2001-2002
Total		4,500			

Table 2. Proposed Pilot Projects

Project title	Site	Components and coverage	Indicative budget (RMB.000)	Return (RMB.000)	Project type	Implementing agency	Schedule
1. financing pilot projects	Kunming, Hongkong		2,500				2001-2003
1) Establish NW Yunnan Conservation Trust Fund	Kunming, Hongkong	RMB 200 million (including US\$ 5 million to be applied for from GEF and the rest should be appropriated by the Provincial Government as well as both domestic and overseas donations.)	1,000 (for preparation phase)		Public benefit	NYARC	2002-2003
2) Establish Yunnan Green Industry Fund	Kunming, Hongkong	RMB 400 million (including US\$ 20 million to be applied for from GEF and the rest should be appropriated by the Provincial Government as well as both domestic and overseas donations.)	1,500 (for preparation phase)		Public and commercial benefit	YPDI	2002-2003
2. Natural and cultural resource conservation and sustainable utilization			151,000				
1) Site conservation planning	Deqin, Zhongdian, Lijiang, Lanping, Jianchuan, Gongshan	<p>Components:</p> <ul style="list-style-type: none"> a) Identify main conservation targets; b) Understand their stresses and causes; c) Develop strategies and options to abate main threats; d) Measure success and readjust the strategies and options. <p>Coverage:</p> <p>Kawagebo (within Deqin);</p> <ul style="list-style-type: none"> a) Qianhushan; b) Laojunshan; c) Biluoxueshan; d) Gaoligongshan (corridor part). 	5,000		Public benefit	YFD, YEPB, YTB, TNC, relevant government agencies at different levels	2001-2005
2) Eco-tourism	Deqin, Lijiang, Zhongdian	<p>Components:</p> <p>Establish eco-tourism models that fit local situations:</p> <p>Coverage:</p> <ul style="list-style-type: none"> a) Kawagebo (Xidang and Sinon administration villages); b) Qianhushan(Jisha natural village); c) Laojunshan; d) Lashihai; e) Biluoxueshan (Dimaluo administration village); f) Binzhongluo 	6,000		Public and commercial benefit	YFD, YTB, YEPB, TNC	2001-2005

<p>3) Rural energy project (carefully select the components that fit local needs, and each of the components will include site identification, energy auditing, demo and promotion)</p>	<p>Deqin, Zhongdian, Lijiang, Lanping, Jianchuan, Gongshan</p>	<p>Components: a) Energy-saving stoves and fireplaces; b) An eco-home system featuring multi-functional bio-gas; c) Solar energy heater; d) Micro-hydropower stations; e) Planting of fuelwood forests; f) Retrofitting of rural fuelwood consuming facilities; g) Small biogas station systems; h) Small wind-powered generating units; i) Alpine passive solar energy heating units for primary and secondary schools.</p> <p>Coverage: d) Kawagebo (Xidang and Sinon administration villages); e) Qianhushan (Jisha natural village); f) Bitahai; g) Yulongxueshan; h) Yunling (Laojunshan); i) Lashihai; j) Biluoxueshan (Dimaluo administration village); k) Dulongjiang; l) Binzhongluo.</p>	<p>80,000 (including rural households' investment)</p>		<p>Public and commercial benefit</p>	<p>YFD, YEPB, YPRO, YWCB, TNC</p>	<p>2001-2005</p>
<p>4) National park pilot program</p>	<p>Deqin, Zhongdian, Lijiang, Lanping, Jianchuan</p>	<p>Components: a) Establish two national parks by introducing internationally recognized approaches of planning, construction and management according to local situation; b) Pilot program for concessionary mechanism establishment and favorite policy.</p> <p>Coverage: a) Kawagebo; b) Laojunshan.</p>	<p>50,000</p>		<p>Public and commercial benefit</p>	<p>YCD, YTB, YFD, YEPB, TNC, relevant government agencies at different levels</p>	<p>2001-2003</p>
<p>5) Culture reserve (village) pilot program</p>	<p>Deqin, Gongshan</p>	<p>Components: a) Demarcation; b) Infrastructure construction; c) Pilot program for various favorite policies.</p> <p>Coverage: a) Kawagebo Tibetan Sacred Mountain Culture Reserve; b) Kongdang Dulong Culture Village.</p>	<p>10,000</p>		<p>Public benefit</p>	<p>YCB, YTB, TNC, the relevant government agencies at different levels</p>	<p>2001-2002</p>
<p>3. Bio-resource tapping innovative industry</p>			<p>86,000</p>				
<p>1) Zhongdian National Botanical Garden</p>	<p>Zhongdian</p>	<p>2,200 hectares. (4 function zones: appreciation zone, rare and endangered plant zone, natural forest zone, and interpretation zone)</p>	<p>36,000</p>	<p>8.00/year</p>	<p>Public and commercial benefit</p>	<p>DPG, ZCG, DGFC</p>	<p>2000-2005</p>

2) Medicinal herb planting and processing	NW Yunnan	Planting of 20 species of medicinal herbs in about 1,333 hectares of land	50,000		Public and commercial benefit	Relevant agencies	2001-2005
4. Capacity building		The training program will be consistent with the pilot projects	13,000				2001-2003
1) Natural resource integrated management curriculum development and training	Kunming	Setting various conservation related curriculums, such as Co-Management, Eco-Regional Conservation Planning, Site Conservation Planning, Eco-Tourism, National Park Planning and Management, etc. in Southwest Forestry College (Cooperate with TNC and a university in USA).	2,000		Public and commercial benefit	SWC, TNC	2001-2003
2) In-situ and ex-situ training program on know-how and practical technique		Hold various training programs in Kunming and the counties (including the job training program for local laid off loggers)	11,000		Public benefit	Government at different levels	2001-2003
Total			252,500				